

REMARKS

The specification has been amended to insert the heading Summary of the Invention, which was inadvertently omitted. A Request for Approval of Drawing Corrections is being submitted herewith. No new matter is presented.

Claims 1-4 are rejected under 35 USC 103(a) as being unpatentable over Hainz (US Patent No. 5,138,428) in view of applicants' own admission. This rejection is respectfully traversed.

The title "Summary of the Invention" has been inserted before paragraph [0009]. The discussion which follows relates only to those facts discovered by the inventors of this application. This is not prior art. The Examiner may not use the inventors' own discoveries against them.

Claim 1 recites "heating the semiconductor laser chip mounted on the base portion while the semiconductor laser chip is kept pressurized toward the base portion, thereby temporarily curing the conductive die-bond paste." This process results in decreasing thermal resistance and reducing the "creep-up" amount. As explained in paragraph [0041], referring to comparative examples 1 and 2, semiconductor lasers manufactured by a varied temporary curing step without heating and pressurizing, respectively, results in higher thermal resistance and greater "creep-up" amounts.

Hainz fails to disclose or suggest the claimed temporary curing process where the mounted semiconductor laser chip is heated and the heated semiconductor laser chip is kept pressurized toward the base portion. Hainz only discloses the claimed step of finally curing the conductive die-bond paste. In fact, Hainz discloses various other methods for preventing the buffer material from running out. For instance, a roughness of approximately 2-5 μm can be produced on the metal carrier (col. 3, lines 17-22). Also, a cavity at the backside of the semiconductor component and/or at the front side of the metal carrier can be employed for this purpose (col. 3, lines 24-27). However, Hainz does not disclosed the claimed method of

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preventing what the applicants refer to as "creep-up." Accordingly, the features of claim 1 are not taught or suggested by the prior art, either alone or combination.

Claim 2 recites that the thermal resistance of the semiconductor laser device is 90 degrees C/W or lower. The Examiner admits that Hainz does not disclose the thermal resistance of the semiconductor laser device is 90 degrees C/W or lower. The Examiner asserts that applicants admit (on page 4) that using indium as the brazing filler material results in a thermal resistance of about 60 degrees C/W, while semiconductor laser devices using silver paste have a thermal resistance of 100 C/W or higher. Therefore, the Examiner asserts that it would have been obvious to modify the teachings of Hainz to provide a semiconductor laser device having a thermal resistance of 90 degrees C/W or lower, as disclosed by the applicants.

As stated above, the findings referred to by the Examiner are the findings of the current inventors and cannot be used as prior art. The Examiner cannot use the inventors own discoveries as prior art. There is no suggestion in Hainz to provide a semiconductor laser device having a thermal resistance of 90 degrees C/W or lower and the Examiner cannot use the discoveries of the inventors of this application to modify the teachings of Hainz. The Examiner is requested to actually cite to a reference which teaches a semiconductor laser device having a thermal resistance of 90 degrees C/W or withdraw this rejection.

Furthermore, even though the discussion in paragraph [0009] relates to the inventors' own discoveries, even this discussion does not specifically provide for a thermal resistance of 90 degrees C/W as claimed. Accordingly, the features of claim 2 are neither taught nor suggested by the prior art, either alone or in combination.

Claims 3 and 4 are allowable at least due to their respective dependencies. Applicants request that this rejection be withdrawn.

Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Hainz in view of applicants' own admission and Masayasu (JP 08-095504). This rejection is respectfully traversed.

Claim 5 recites the features of claim 2, which are neither taught nor suggested by any of the cited prior art, either alone or in combination. Masayasu is cited solely as teaching the use of an electrically conductive die-bond silver paste. The Examiner asserts that it would have been obvious to have employed the silver paste in Hainz “for the benefit of using the electrical conductive die-bond silver paste ... for bonding the two structure[sic] together.”

The Examiner has not provided adequate evidence of motivation to modify Hainz to use the claimed silver paste. Simply because Masayasu teachings using silver paste would not have motivated Hainz to use silver paste. In fact, Hainz states that it is especially advantageous to use a thick gold layer as the buffer material. The gold layer would also be electrically conductive. The simple fact is that Hainz is unconcerned with the thermal resistance of the semiconductor device and one of ordinary skill in the art would not have been motivated to employ the silver paste because of its thermal resistance properties. The Examiner has clearly used impermissible hindsight in this rejection. In light of the foregoing, Applicants request that this rejection be withdrawn.

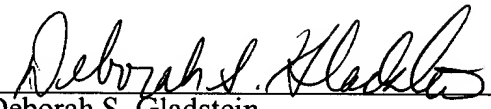
Attached hereto is a marked-up version of the changes made to the specification by the current amendment, captioned “**Version with markings to show changes made.**”

In the event that the transmittal letter is separated from this document and the Patent Office determines that an extension and/or other relief is required, Applicants petition for any required relief including extensions of time and authorize the Commissioner to charge the cost

of such petitions and/or other fees due in connection with the filing of this document to **Deposit**
Account No. 03-1952 referencing docket no. 204552021700.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Specification:

On page 4, before paragraph [0009], insert the following heading:

SUMMARY OF THE INVENTION